

Thomas J. Irmiter

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Work Experience

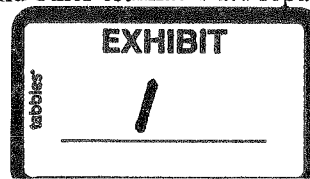
Forensic Building Science, Inc.
Responsibilities:

2004 to Present

Owner/Principal

- Forensic Analysis and evaluation of Water Intrusion Behind exterior boundary walls on residential single family and two family dwellings.
- Causation analysis of failed wall, floor, and roof assemblies
- Evaluation of UBC, BOCA, IBC, and IRC Codes and Standards
- Evidence collection and on-site documentation of remediation and repair
- Project Specifications
- Construction Dispute Resolution
- Fenestration Testing and Deconstruction
- Theory of damages development
- Pre-sale home inspections
- Project Management and Project Cost Estimating – Exactimate etc.
- Staged site inspection and documentation on new homes under construction including footing, framing, weather barrier, roofing, fenestrations inspections, and insulation and ventilation inspections.
- Comparative bids and job cost analysis and scope analysis
- Water exfiltration analysis
- Bulk mold, soot, lead, and asbestos sampling
- Review and evaluation of project documents
- Inspection on first-party losses including fire, wind, hail, ice dams, tornadoes and floods.
- First-party loss claim inspections for building owners
- Pitched and Flat roof and facade inspections including EPDM, copper, metal standing Seam, TPO, pitch and gravel, shingles, tile, slate, flashing Stucco, EIFS, Brick, Stone, Vinyl siding, Hardi-Composite siding, Wood siding and CMU.
- Insurance appraisals as umpire and appraiser

As principal of FBS, Mr. Irmiter is responsible for conducting on-site testing and evaluations (both non-invasive and destructive) of foundation assemblies, wall assemblies, soffit assemblies and roof assemblies using ASTM Standard E-2128. In addition, FBS also does destructive dismantling of these same assemblies including fenestrations. Evaluations of as-built conditions in relation to original plans and specifications as well as construction sequencing, are also part of the company's process studies. Preparing project specifications for repair and remediation, and obtaining and reviewing bids from licensed contractors are also incorporated into the firm's scope of work, which also includes preparing Exactimate and other estimates for repair.



Evaluation of applicable codes and standards in place at the time of original construction as well as expert witness and theory of damages encompass the work done by Mr. Irmiter.

Mr. Irmiter also conducts detailed presale inspections and informational file reviews for prospective home buyers. FBS is a participating member of The International Code Council, ASTM, and a member of the Better Business Bureau.

FBS has conducted inspections in New York, New Jersey, Florida, Wisconsin, South Dakota, Minnesota, Iowa, Missouri and Colorado.

Advanced Building Solutions, Inc.

2003 to 2004

Senior Consultant

- Construction Litigation Consulting
- Principal expert witness for the company
- Forensic Analysis of Construction Defects, including on site testing
- Window Deconstruction
- Building Code Evaluations
- Water intrusion studies and reports
- Water penetration testing
- Expert witness on three arbitrations and two court cases.
- Eight depositions and numerous affidavits
- 15 mediations
- Final analysis of damages

Responsible for on-site forensic destructive testing to determine problems related primarily to bulk water intrusion. Review all evidence gathered from full remediation projects and issue pertinent reports. Maintain and update a database of project costs representing a cross-section of contractors and project types. Research and test various products used to construct wall assemblies. Develop and maintain a protocol for destructive evaluations of fenestrations. Assist in developing and implementing "Best Practices" and protocols for remediation projects including partner contractor training.

Donnelly Management Services, Inc.

2002 to 2003 Forensic Architectural Specialist

- Developed concept of a service to represent home owners experiencing failures to their homes as a result of water infiltration issues.
- Created initial "Best Practices" for Donnelly Stucco for their involvement in the full remediation process.
- Documented and issued pertinent reports on discoveries at failed structures, both residential and commercial.
- Established and maintained protocols for on-site documentation and evidence gathering and storage
- Principal expert witness for company

- Established template for water intrusion reports including creation of terms in use by other consultants today.
- Created some of the first full remediation specifications and templates in use by other firms today.
- Developed a percentage of damages theory used in mediations today.
- Developed a unit cost template still used by others today.

Donnelly Stucco Sales

2001 to 2002

- Residential and commercial stucco sales and design for traditional 4-coat, proprietary 2-coat and EIFS systems
- Daily sales for residential re-stucco and stucco related repairs
- Initial forensic destructive testing in spring of 2002
- On-site "hands-on" involvement in remediation and reconstruction process
- Management of sales leads
- Maintain company marketing program
- Prepare all estimates including new construction stucco work
- Prepare and execute contracts
- Assist clients with color and texture designs
- Attend pre-job meeting with client and Donnelly plastering staff person
- Worked in the field as an installer from time to time.

Irmiter Contractors & Builders, Ltd.

1984 to 2000

President

Company received numerous local and national awards for design, management and implementation until unsuccessful merger acquisition of House of Dreams, LLC in 2000. This acquisition caused the company to close in January 2001.

1984 - 2000:

In 1984, Mr. Irmiter purchased the assets of his father's sole proprietor business and formed Irmiter Contractors and Builders, Ltd. His training and education in the field and in the classroom included:

- Application of Building Codes and Standards into practical field applications.
- Advanced framing using floor truss systems.
- Installation of flanged windows.
- Installation of new product from Dupont called Tyvek.
- Job sequencing and project scheduling.

Exactimate Training and use.

- Introduction to cad design.
- Use of Simpson fasteners and connectors to obtain structurally rated assemblies.
- Point load design.
- Requirements for Historic Restoration.
- Steel beam and column construction.
- Insulation and ventilation techniques.

- Calculating loads on wall, floor and roof assemblies including mathematical formulas.
- Blue print reading and materials take-offs.
- Building codes and standards by geographic region including UBC, BOCA, WDC and Model Energy Code.
- Administration of construction projects.
- Construction Contracts and Project Specifications.
- Fastening schedules for various components including, studs, plates, headers, sheathing, lath, weather barriers, and ledgers.
- Calculating live load and dead loads and snow loads.
- Site layout and drainage
- Basic mechanical and electrical.
- Received 100 hours of field training from Chevron Corporation on use of Chevron Industrial Membrane (CIM) for use on flat roof applications and pond liners. Install CIM product on over 50 residential and commercial structures over 4-year period. Product used to replace standard 5-ply hot mop systems in place at the time. Included specific training on wall to roof flashing details, flashing at posts and penetrations, pitch pockets and special applications on vertical surfaces.
- Received 40 hours training from manufacturer of EPDM system called "Whale Skin" including ballast system install, mechanical fastener install and full adhesion system install. Installed various system membranes on flat roofs for 10-year period.
- Received over 100 hours of specific training from Marvin Windows and their representatives including John Taylor on proper installation for and of Marvin windows and doors including sizing, measuring, layout, field mulling, structural field mulling, and designing window walls.
- Architectural drafting and design, including structural load designs on wall, floor and roof systems for 11 weeks, twice a week, four hours a night, at Hennepin Technical College, Minneapolis 1985-86 (total 90 hours).
- Project Specification writing 3-weeks Hennepin Technical College 1986 (total 40 hours).
- Direct training by Velux America through the W.J. White Company in Bloomington Minnesota on installation and field service modification of Velux roof windows. 40 hours training included modification of engineered trusses for installation of oversized skylights, complex framing of skylight shafts, proper flashing techniques for skylights and roof windows on sloped and non-sloped roofs, and gag framing and flashing of skylights and roof windows. Personally spent 5-years approximately 3000 hours trouble shooting and repairing improper insulations (leakers) in five state area, including commercial applications Developed and installed first gang flash system using low pitched roofing kit on flat roof, still in use today. Installed over 1500 roof windows and skylights from 1980-1990.
- Direct training by Solarium Systems Inc, Bloomington Minnesota, Lord and Burnham Greenhouse systems and Four Seasons greenhouses through W.J. White Company for:
 - Erection and construction of glass solariums
 - Training period was six months long (1000 hours) and included both class room training, actual hands on manufacturing at the plant.

- Including cutting extrusions.
- Installing weep tracks
- Installing glazing tapes and glazing panes
- Installing mull covers
- Integration of operable fenestration components including windows doors and fan systems.
- Building and designing heat sink collectors using insulated slab on grade and wood foundations.
- Heat wall and trompe wall designs.
- Complex hip unit solariums and multiple unit designs and structurally rated extrusions and where to use these.
- Spread mull techniques and structurally rated mull assemblies.
- Integrating site built and erected solariums into wall and roof assemblies and proper flashing techniques.
- Installed over 100 solariums and solariums component systems for W.J. White during 5-year period on both residential and commercial structures.

Bud Irmiter Remodeling

1976 to 1984

Master Carpenter

Worked full-time as a lead carpenter running numerous crews. Additional training included:

- Specification writing
- Blue print reading and materials take offs for complex projects
- Integration of subcontractors and project scheduling
- Proper job sequencing
- Design and installation of wood foundation systems
- All aspects of framing
- Advanced electrical rough in
- Re-supporting houses with off-set bearing walls
- Re-supporting failed and sagged footings, posts, beams and wall structures
- Changing structural bearing points
- Interior finishing trim including stair construction
- Multi-level deck design
- Advanced cabinet making
- Cabinet and countertop lamination
- Advanced plumbing including relocation of and offsetting of soils and waste pipes
- Working with poly retarders and un-faced insulation
- Training and installation of EPDM roofing and related materials.

Bud Irmiter Remodeling

1969 to 1976

Apprentice Program

Received the following extensive training:

- Masonry
- Carpentry, which including all aspects of framing, siding and roofing
- Stucco and brick
- Electrical, plumbing and heating
- Interior plastering and decorating

- Cabinet making
- Roofing (standard shingle, cedar shake, tile, slate, flashing details, chimney rebuilding and tuck pointing, hot tar)

Specific duties and training in:

(1969 - 1971):

- Clearing job sites particularly on the residential roofing projects we did.
- Learning to properly stack and cover framing lumber.
- Installing mop down starter edge and 90 lbs. rolled roofing (this was prior to the development of ice and water shield).
- Installing 18 inch lap to the weather rolled roofing on flat and slightly built up roofs (this was prior to EPDM membranes).
- Scrapping and priming exterior homes.
- Sanding gypsum board.
- Cutting and installing ceramic tile.
- Concrete mixing.

1971 – 1995: (Except for 10 month City of Minneapolis Internship)

- Advanced framing including layout of floors, walls, roof structures, bearing points, point loads, stairs etc.
- Installation of metal roof flashing and underlayment flashing.
- Installation of 3-tab shingles and metal valleys.
- Tuck pointing chimneys, rebuilding chimneys and chimney flashing.
- Construction of chimney saddles and crickets.
- Installation of lead flashing on tile roofs and tile and slate roof repairs.
- Solder jointing metal roofing.
- Inboard gutter repair and rebuilding.
- Surface mounted gutter installations.
- Foundation water proofing.
- Wall framing and layout.
- Installation of weather resistive barriers.
- Installation of Kraft Faced insulation.
- Gypsum board installation.
- Fire taping Gyp. Board.
- Interior and exterior painting and staining.
- Glass and sash chord replacement.
- Repair and rebuilding of double hung windows.
- Selection of wood and basic cutting of components for cabinet making.
- Excavation and site preparations.
- Foundation and footing layout.
- Footing installation, including post, ledge and spread footings.
- Block installation
- Installation of drain tiles
- Wood and steel siding installation.
- Plywood and Bildrite sheathing installation.
- Installation of lath and stucco

- Stucco re-dashing.
- Gypsum board taping, Plaster repair.
- Spray texturing.
- Wall papering.
- Removal of lead and galvanized water pipes and installation of copper water pipes.
- Removal and installation of hot water boilers.
- Installation of carpet and linoleum.
- Installation of wood floors including floor refinishing.
- Stripping and refinishing wood work.
- Retrofitting new headers without installing temporary support walls.
- Advanced cabinet making including mortise and tennon work.
- Basic electrical rough in.

Training by C.G. Irmiter, Graduate of Dunwoody Trade School in six trades

Office of Public Information, City of Minneapolis

1977 to 1978

Director

Reported directly to City Clerk Lyle Schwarzkopf. Managed staff of 8 people. Was responsible for publishing monthly city employee newsletter. Assisted in lobbying effort for proposed downtown stadium. Received training from federal energy agency for Thermography study regarding heat loss in residential structures, including extensive training on interpreting infrared images, convective loops and negative plain pressure as these relate to improper insulation and ventilation procedures and percentage of heat loss attributable to wall and roof assemblies. Implemented and delivered secondary training to citizens in local wards for presentation of the Thermography images that were taken by the Federal Energy Agency in conjunction with the department of Housing and Urban Development, (HUD). Personally inspected approximately 5 homes in each ward (total of 50) to verify accuracy of testing procedures and make recommendations for proper insulation and ventilation of the attic areas.

Consulting Experience

Construction Consultant

1985 to present

- Expert witness testimony for both Plaintiffs and Defendants
- Destructive testing on over 850 homes
- Inspection of over 2500 homes
- Co-produced documentary for WCCO I-Team investigation of local Home Builders on "Houses from Hell" focus, Pajec Residence, Apple valley (1991).
- Principal designer for ICB, Ltd. on over 1500 residential remodeling and renovation projects.
- Developed installation strategies for Andersen Renewal windows, including changes in flashing and flange designs.

- Named by Hennepin County District Court Judge in 1998 to serve as sole arbitrator on construction dispute between Silver Bullet Construction and one of their clients.
- Consulted for Marvin Windows only window store in St. Louis, Missouri for four years.
- Consulted for the National Association of Home Builders Research Center in Washington D.C. for four years.
- Consulted with Malcolm Baldrich Institute in Washington D.C. and was part of five person team to develop National Quality Standards for residential construction.

Guest Lecturer

1986 to present

- National Convention for National Assoc. for the Remodeling Industry, 1986 - 1999
- International Symposium on Sustainable Housing Insulation in Northern climate houses, 1988
- City of St. Paul District 14 Council annual Remodeling exposition, 1990 - 1995
- National Conventions for NAHB, 1990 - 1998
- National Convention for NKBA, 1990 - 1998
- Remodelers Council: Anderson Windows, Marvin Windows, and Covey Institute, 1990 - 1999
- National Leadership Conference: Topic Construction Management, Sponsored by NAHB, Hanley Wood, Andersen Windows, 1998
- America Society of Home Inspectors – How to inspect for water intrusion current methodologies, 2003
- Guest lecturer Mold summit, Chicago IL, 2005

Education

| | | |
|--------------------------------------|--|---------|
| Hamline University | Bachelors of Arts Degree | 1979 |
| AWCI International | Mold remediation and site documentation | 2002 |
| Minneapolis Technical College | Architectural drafting and design Structural load designs on wall, floor and roof systems | 1985-86 |

| | | |
|--|--|------|
| University of Wisconsin | Masters in Engineering Science Advanced Project Management Class | 2007 |
| State of Minnesota Department of Labor and Industry | Completed required coursework to Test for Certified State Building Official (CBO LTD) (Limited to one and two family and small commercial and accessibility codes) | 2007 |
| State of Minnesota Certified Building Official Ltd. MN No. 2764 | | 2007 |
| Completed testing to receive designation as Residential Building Inspector for the International Code Council Lic. No. 531388-B-1 | | |

Advanced Training Seminars and Courses

| | | |
|--|-------------------------------|-------------|
| Hennepin Technical College | Project Specification writing | 1986 |
| Solarium Systems, Inc, Lord and Burnham Green, and Four Seasons | | 1986 |
| <ul style="list-style-type: none">• Erection and construction of glass solariums.• Training period was six months long (1000 hours) and included both classroom training, actual hands on manufacturing at the plant.• Including cutting extrusions.• Installing weep tracks.• Installing glazing tapes and glazing panes.• Installing mull covers.• Integration of operable fenestration components including windows doors and fan systems.• Building and designing heat sink collectors using insulated slab on grade and wood foundations.• Heat wall and trompe wall designs.• Complex hip unit solariums and multiple unit designs and structurally rated extrusions and where to use these.• Spread mull techniques and structurally rated mull assemblies.• Integrating site-built and erected solariums into wall and roof assemblies and proper flashing techniques | | |
| National Association for the Remodeling Industry (NARI) | | 1989 - 2002 |
| <ul style="list-style-type: none">• Advanced framing using floor truss systems.• Installation of flanged windows.• Supplemental Exactimate training• New product from DuPont called Tyvek.• Job sequencing and project scheduling.• Introduction to cad design.• Use of Simpson fasteners and connectors to obtain structurally rated assemblies.• Insulation and ventilation techniques. | | |

National Association for the Remodeling Industry (NARI) Certified Remodeler Test

1990

- Calculating loads on wall, floor and roof assemblies
- Blue print reading and materials take-offs
- Building codes and Standards by geographic region including UBC, BOCA, WDC and Model Energy Code
- Administration of construction projects
- Construction Contracts and Project Specifications
- Fastening schedules for various components including, studs, plates, headers, sheathing, lath, weather barriers, and ledgers
- Calculating live load and dead loads and snow loads
- Site layout and drainage
- Basic mechanical and electrical

State of Minnesota Continuing Education:

- 1993-2000 took required six hours of continuing education to maintain contractors' license.
- Additionally, taught classes required for contractor continuing education including lead safety training. At that time I was the only non -State of Minnesota Department of Health person qualified by the Department of Commerce to teach lead safety training. To my knowledge, I still hold that qualification.

1989-2006: Attended same national conventions and took a minimum 12 hours continuing educations each year on the following: (200 plus hours)

- Weather resistive barriers, including "D" paper, Pink wrap and Typar.
- Window and door flashing.
- CAD design.
- Computer aided estimating --"Exactimate system".
- Peach tree estimating system.
- Vapor retarders.
- Insulation.
- Ventilation.
- Roofing.
- Fasteners and connectors.
- Compute aided Structural analysis.
- Caulks and sealants.
- Tyvek, including an addition 10 hours direct training by Dupont in Florida in 1999 on new product call stucco wrap and flex wrap.
- MFM brand window tape seminar.
- Pella window tape seminar 2002, Indianapolis, IN.
- Building Science Corporation, Joe Listerbeck, water intrusion diagnosis and repair, 2002, Indianapolis, IN.
- Complex framing using LPI and TJI joists.

- Using OSB as a structurally rated panel.
- Barrier free design.
- Proper installation of kick-out flashing, AWCI, 2002, San Antonio, TX.
- What causes mold? AWCI 2002.
- Plaintiffs Mold Summit 2005 (16 hours training)

University of Wisconsin Platteville:

- Project Management Advanced Level II Masters class grade 98 out of possible 100.

Special Training:

January 1993: 30 - hours factory training with Marvin Windows in Warroad at the plant, including:

- Removable vs. factory applied flanges
- Sealant at flanges
- Need for drip caps
- Introduction of SDL glazing
- Change in coating process for factory finishes
- Metal frame assembly installation over wood assembly
- Authentic Divided lite limitation with glazing panels
- Use of commercial products in historic residential structures
- HPC approvals for Marvin Alpine
- Installation techniques including flashing gridlines.
- First look at French casement prototypes

1997-1999 Joint Venture with Andersen Renewal windows including the following:

- Liaison to Andersen Partnership Council (group of 20 contractor advisors)
- Set up 20 person installation team to install first windows developed in pilot program
- Direct consultant with Aspen Technologies and Andersen Design team.
- Recommended modifications to the product including flange system
- Glazing pockets and type of seal at glazing panel
- Drip cap design and integration
- Weep system design
- Installation techniques and requirements
- Installation costs by unit-developed one of three tracking systems.
- Consulted on advertising and marketing of product
- Received over 200 hours in training from Andersen on fenestration products, including design installation, service, sales, marketing and distribution.
- Assisted Renewal in setting up in home sales and show room sales program.
- Trained first sets of Renewal sales force by personally going with them on hundreds of initial call to see if the product would work in the proposed applications.

- 2001 Association of Wall and Ceilings International (AWCI) Conference
- Mold abatement and diagnostic techniques class.
 - EFIS installation techniques and establishing drainage plains.
 - Barrier wall design vs. Drain plane design
- 2002 Remodelers Show, Indianapolis, IN
- Pella window installation training and techniques using Tyvek and new Pella tape system seminar.
 - Mold seminar taught by Dr. Joe Listerbeck.
 - Seminar on comparison of OSB, Dens glass Gold and Plywood permeability.
- 2003 Architectural Testing window performance seminar
- Testing and interpreting testing results of fenestrations using AAMA and ASTM criteria.
 - Using ASTM E-2128 as performance criteria for evaluating water intrusion.
 - Class on glazing panels and U-values.
- 2006-2007 Spring Completion - University of Wisconsin
- Advanced Project Management Techniques and Principals Level II – Masters Level

Industry Awards

- 1990 Remodeling Magazine "Big 50" Awarded as one of Top 50 contractors in the nation.
- 1990 First contractor in Minnesota to pass the certified remodelers test and received the Certified Remodelers Designation
- 1989-1996 Outstanding leadership award, Minnesota chapter, N.A.R.I.
- 1994-1997 Leadership awarded each year by the Builders Association of Minnesota
- 1994 Founded Minneapolis/St. Paul Home Tour
- 1995 Criteria writer for National Quality Awards sponsored by National Association of Home Builders, located in Washington D.C.
- 1996-1998 One of 4 judges for National Quality Awards

Professional Organization Membership

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|-----------|--|
| 1989 | President, Minnesota chapter, N.A.R.I. |
| 1990 | President, Minnesota chapter of The National Association for the Remodeling Industry (N.A.R.I.). |
| 1990 | Presented first Uniform Model Contractor Licensing Bill for Remodelers to Builders Association of Minnesota and State legislature. |
| 1991 | President, Minnesota chapter of N.A.R.I. |
| 1996-1998 | Appointed to state board Builders Association of Minnesota. |
| 1996-1998 | Member of Andersen Window's Partnership Council. |
| 1997-1999 | Assisted in development of "Renewal" window by Andersen. |
| 2004-2006 | Member of American Society of Testing and Materials (ASTM). |
| 2007 | International Code Council (ICC) professional membership. |

Expert Witness for Construction Litigation

1986 to present

- Over 25 district court case appearances
- Over 25 arbitrations
- Over 50 depositions
- Over 150 mediations
- One district court case as an arbitrator
- 25 times Appraiser for Insurance cases
- 3 times Umpire for Insurance appraisals

List of Construction defect, water intrusion and contract dispute cases where Mr. Irmiter has been retained as an expert since January 2002 available on request.

Updated 12-27-11

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Testimony, Deposition and Arbitration Experience

Here is a list of cases I have worked starting in 2002. Prior to 2002 there are about 10 -12 others dating back as far as the early 1991-92.

Testimony at District Court Trials:

1. Scott and Carla Lalim – (2005) Hennepin County, case settled after jury selection as I was being prepared to be sworn in. I was deposed by Peter Fetterly, McCollum and Crowley. I also provide at least one court affidavit. Attorney – Mark Peschel (Johnson and Lindberg)
2. Catherine Libbe – (2006) Hennepin County, testified for 2 hours on the first day of trial, case settled after lunch. Also deposed by McCollum Crowley and provided signed affidavits. Attorney- Vince Waters (Waters and Scott.) Testified on findings, standards and codes.
3. Linda Elwood (2005) - Hennepin County, testified on water intrusion from failed fenestrations and greenhouse. Testifies on standards and codes. Case won by Plaintiff. Attorney Thomas Foster
4. Gunnerson (2011) Wright County Minnesota

Testimony at arbitrations:

1. Tony and Carolyn Johnson vs. Robert Mason Homes (2003) Hennepin County- \$1,366,139.00 award for plaintiffs. Testified for five days attended trial for thirteen days as expert witness on water intrusion and construction defects, standards and codes. David Sand (Briggs and Morgan)

2. Charles Loegering vs. Hildahl (Previous Owners) (North Oaks –Hennepin County) testified as expert witness on water intrusion. (Thomas Foster)
3. Paulsen vs. Lundgren Brothers-Lennar Corp. (2004 Hennepin County) Plaintiffs awarded damages of \$ 118,000.00 (vs. defense claim of \$3,000.00). Testified as an expert on fenestration products, stucco, fiberboard sheathing and weather barriers. (Thomas Foster)
4. Tim Matteson vs. Tony Eiden Homes (2004 - Hennepin County) Plaintiff awarded damages of \$ 217,000.00. Defense claimed damages were \$ 3,000.00. Expert testimony on codes and standards, fenestrations, sheathing, framing, and stucco. (David Sand Briggs and Morgan)
5. Eric Vanbalen vs. previous Home Owners, real estate disclosure issue 2007. Held at Murane and Brandt

First Party Appraisals:

1. Copper Oaks – Hail damage claim large association served as appraiser 2007
2. Aanenson Appraisal – flood claim served as umpire 2007
3. Bengston Water damage claim – served as expert witness 2008
4. Le Residence- Hail claim served as umpire 2009
5. Creekwood Estates –Hail damage claim 2009 Expert witness
6. Cartier Water damage claim – Expert witness on water damage claim 2009
7. 2nd Chance Minnetrista – Served as Expert on fire loss claim 2009-2010
8. 1822 East Lake Partnership –Expert witness on fire loss claim 2010
9. Curt and Stacy Marks – Water damage claim Main House 2010 Expert Testimony
10. 1831 East Lake Testify as expert 2011

11. Evergreen Court Townhomes expert testimony 2011
12. Thoren matter, appraiser for Plaintiff 2011
13. Arlandson matter, appraiser for Plaintiff 2011
14. Hamilton matter, appraiser for Plaintiff 2011
15. Palchizaca matter, appraiser for Plaintiff 2011
16. Walsh matter, appraiser for Plaintiff 2011
17. C. Anderson matter, IA, appraiser for Plaintiff 2012
18. Blane Duncklee (8 properties), IA, appraiser for Plaintiff 2012
19. Weispfenning matter, IA, appraiser for Plaintiff 2012
20. Whipple matter, IA, appraiser for Plaintiff 2012
21. Kin matter (2 properties), IA, appraiser for Plaintiff
22. Skinner matter, IA, appraiser for Plaintiff
23. J. Anderson matter, IA, appraiser for Plaintiff
24. Goshon matter, IA, appraiser for Plaintiff
25. Elkin matter, IA, appraiser for Plaintiff
26. Mayorga matter, IA, appraiser for Plaintiff
27. Dobbs matter, IA, appraiser for Plaintiff
28. Middleton matter, TX, appraiser for Plaintiff
29. Gazaway matter, MO, appraiser for Plaintiff
30. Cook matter, MO, appraiser for Plaintiff
31. Baker matter, AL, appraiser for Plaintiff
32. Falk matter, AL, appraiser for Plaintiff
33. Johnson matter, AL, appraiser for Plaintiff
34. Riley matter, AL, appraiser for Plaintiff
35. Ballard matter, AL, appraiser for Plaintiff
36. Carter matter, AL, appraiser for Plaintiff
37. Cousette matter, AL, appraiser for Plaintiff
38. Cox matter, AL, appraiser for Plaintiff
39. Crawford matter, AL, appraiser for Plaintiff
40. Fields matter, AL, appraiser for Plaintiff
41. Flenoury matter, AL, appraiser for Plaintiff
42. Hibernian Street Church matter, AL, appraiser for Plaintiff
43. Love matter, AL, appraiser for Plaintiff
44. Silmon matter, AL, appraiser for Plaintiff

45. Smiley matter, AL, appraiser for Plaintiff
46. Swanson matter, AL, appraiser for Plaintiff
47. Williams matter, AL, appraiser for Plaintiff
48. Ziegler matter, AL, appraiser for Plaintiff
49. North Star v. Anderson, appraiser for Defendant
insurance company

Depositions and or affidavits filed in courts:

1. Meade vs. W.F. Bauer (2003) Washington County, MN
2. Kolar vs. W.F. Bauer (2003) Washington County, MN
3. Bronk vs. Kyle Hunt and Partners (2003) Scott County, MN
4. Linden (2003) Hudson, Wisconsin
5. Wines vs. Wayne Kaiser Construction Hudson, Wisconsin (2003)
6. Seeler vs. Krois- (2003) Hennepin County, MN
7. Johnson-Mirshekari vs., Nedegarrrd (2003) Hennepin County, MN
8. Bloom vs. Landico (2004) Hennepin County, MN
9. Bloom vs. Western National (2005) Hennepin County, MN
10. Buscher vs. Economy Premier –Met Life (2005) Federal Court 8th Circuit.
11. Knudsen vs. Krois (2004) Hennepin County, MN
12. Bruber vs. Harvey Homes (2006) Dakota County, MN
13. Harmel (2004-2005) Hennepin County, MN
14. Gabrielson (2005) Washington County, MN
15. Linders vs. Panel Craft (2004) Hennepin County, MN
16. Prowse (2004) Washington County, MN
17. Miller (2004) Hennepin County, MN
18. Parnes (2005) Hennepin County, MN
19. Ott (2005) Washington County, MN
20. Montieth (2005) Washington County, MN
21. Morrissey (2005-2006) Ramsey County, MN

22. Goldfus (2006) New Jersey
23. Doyle (2005) Hennepin County, MN
24. Stevekin (2005) Ramsey County, MN
25. Bonfe (2005) Ramsey County, MN
26. Fitchel (2005) Ramsey County, MN
27. Rihm (2005) Ramsey County, MN
28. Berliner (2005) Ramsey County, MN
29. Lalim (2004)
30. Libbe (2004)
31. Buscher (2005-2007)
32. Creekwood Estates (2006-2009)
33. Creekwood vs. Lloyds of London, Federal Court (2011)
34. Swenson (South Dakota) 2011
35. Krohn vs. Minks Custom Homes, Inc., et al.,
Washington County, MN (2011)
36. Friedberg vs. Chubb & Sons, Inc., et al., Federal Court
(2011)
37. Tamarind vs. Mid-Century Insurance Co., Federal
Court (2011)
38. Emmanuel Tabernacle (OK) 2012
39. Country Lane/Werner Investments (CO) 2012
40. Kevin McGlothlen (CO) 2012
41. Windsor Court (CO) 2012
42. Advanced Auto Body (CO) 2012
43. Daniel Clark (CO) 2012
44. Bethany Medical Clinic (OK) 2012
45. Greater Mount Carmel Baptist Church (OK) 2012
46. New Bethel Baptist Church (OK) 2012
47. Internet Physicians (TX) 2012

Updated 8-24-12



Forensic Building Science Rate Schedule Effective January 1, 2012

Hourly rates:

1. Materials at invoice amount plus 10%.
2. Fieldwork for Principal: \$ 200.00/Hour. All other work at the rate of \$225.00/hour.
3. Fieldwork for Engineer: \$160.00/Hour. All other work at the rate of \$200.00/hour.
4. Fieldwork for Project Managers and EIT at the rate of \$135/hour.
5. Construction observation by Project Managers at the rate of \$95.00/hour.
6. Photo report set up will be billed at the rate of \$50.00/hour.
7. Photo report writing will be billed at the rate of \$135.00/hour.
8. Any required or necessary outside testing, structural or environmental engineering, at invoice amount plus 20%.
9. Incidentals including but not limited to, color copying, compiling reports, parking, travel expenses, etc., at invoice amount plus 10%. NOTE: ALL PHOTOCOPYING WILL BE BILLED AT COMPETITIVE MARKET RATES.
10. Office services such as: faxing documents, typing, additional notifications, etc., at the rate of \$50.00/hour.

Set Fee:

1. Depositions in 13 county Metro area Minneapolis and St. Paul \$ 1500.00/Day [6 Hours Typical] \$225/Hr. over 6 Hours or \$ 2000.00 fixed for 8 Hour day.
2. Outer State of Minnesota and Wisconsin River valley: \$ 1500.00 to \$ 2000.00 includes travel by car. Lodging Extra.
3. Other States: \$ 2500.00 per day plus travel and lodging costs.

Fixed rate costs for inspections, trial testimony, appraisals, umpire services and mediations available on request.

Forensic Building Science, Inc.
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Website: www.forensicbuildingscience.com

Brian C. Johnson, P.E.
Forensic Building Science, Inc.

Professional Biography

Mr. Johnson completed a B.S. in Civil Engineering at the University of Minnesota in 1994 (cum laude) and an M.S.C.E. in 2000. He worked as a consulting structural E.I.T. in Columbus, Ohio for five years.

Mr. Johnson became a registered Professional Engineer (Civil) in Minnesota in 2004. He has since worked as a project engineer on various projects in steel, precast, masonry and wood. He has experience as an investigator on building failures, has been responsible for preparing project specifications, scopes of works, project estimates (using RS/ MEANS), and relevant drawings as a Senior Construction Engineer for Lockheed Martin as part of the FAA's NISC2 contract as a government contractor and consulting engineer.

In 2010, Mr. Johnson joined Forensic Building Science as a Project Engineer.

Civil Engineering

Mr. Johnson's experience includes numerous residential wood projects including prototype review for regional and national production home builders including Dominion Homes and Centex. In that work he was responsible for partial engineering on the portions of the residences that did not conform to the prescriptive requirements of the IRC, 2000, 2003 editions. He examined construction deviations in the field to determine if and when appropriate repairs were needed.

Mr. Johnson has conducted failure analysis on wood roof trusses, fire damaged assemblies, and other unusual situations. Specific services included preliminary and final design services, and on site structural observation. Interaction with building officials was an important part of this work to assist in determining proper scopes and project costs.

Mr. Johnson has worked on numerous commercial projects including new and existing construction, retrofit and expansions on schools and hospitals. Additional projects included small wood structures to large retail expansions and big box in-line retail structures, lot line foundations, and roofs subject to hurricane uplift.

Construction projects of note:

Hazel Park Heights (27 unit), and Villas at Midland Hills (33 units)- Three story wood on precast parking garages in St. Paul and Roseville, Minnesota as the Engineer of Record.

Rosedale Mall AMC Theater and Retail expansion - Design of composite steel and concrete floor system, lateral load analysis, vibration analysis, stadium seating framing, elevated projection-level mezzanine steel framing.

Inver Grove Heights Simley High School Expansion - Retrofit and analysis work on six different portions of the building constructed between 1950 and the present, new precast plank on steel framing of expansion.

St. Augustine Gander Mountain steel framing and steel joist framing, embed plate attachments into tilt-up concrete panels. Component and Cladding loads on open log trusses and lag screw attachment calculation review.

Mr. Johnson has performed work on projects in Florida, Texas, Minnesota, Wisconsin, Ohio, and Montana.

Forensic Engineering

At Forensic Building Science, Mr. Johnson is responsible for:
Overseeing and managing water intrusion investigations.

- Conducting forensic engineering analysis.
- Verifying code compliance and compliance with manufacturer's standards.
- Issuing causation reports.
- Developing repair strategies.
- Participating in legal resolutions.
- Preparing construction documents.
- Obtaining construction bids.
- Observing construction as the Owner's Representative.

Recent water intrusion projects

Ward residence (1997 UBC)

- Examination of stucco construction.
- Code and Standards review.
- Report drafting and final report.
- Sealed repair drawings.

Krohn residence (2006 IRC)

- Examination of existing construction.
- Code and Standards review.
- Report drafting and final report, analysis.

Greenleaf Lofts (2000 IRC and IBC)

- Examination of stucco construction
- Code and Standards review.
- Report drafting and analysis.

Interlachen Town homes (1994 and 1997 UBC)

- Examination of existing construction.
- Code and Standards review.

Lecturer

Mr. Johnson led classes on Concrete design for the MSPE Principles and Practice exam prep course (Concrete), and the ethics segment of the Engineer-In-Training (FE) exam prep course.

Peer reviewer

Nine steel braced/moment frame buildings in Bee Cave, Texas.

Depositions

RC partners, Harris County, Texas, Docket number: 2011-47318, November 20, 2012.

Trial Testimony

Interlachen, Hennepin County, Minnesota, Docket number: 27-CV-11-12855, January 14, 2013.

Professional Licensure

Mr. Johnson is a Professional Engineer licensed to practice civil engineering in:

- Minnesota, License number 43390.
- Wisconsin, License number E-41682.
- South Dakota, License number 11041.
- Iowa, License number 20717.
- Colorado, License number 45862.
- Missouri, License number 2012000045.
- Alabama, License number 32517.

Texas, License number 110700.
Kentucky, License number 28496.
Oklahoma, License number 25669.
Arizona, License number 53401.
Kansas, License number 22256.

Certifications

Haag Certified Roof Inspector-Commercial #201201202, Jan 21, 2012
TWIA/TBPE Qualified Windstorm Inspector Mar 30, 2012.

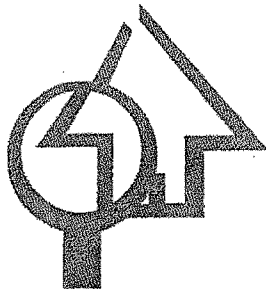
Experience

- **Chief Engineer**, Poly-Tex, Castle Rock, MN, May 08 – Feb 10
Lead four-person department for greenhouse manufacturer, covering drafting, product development, part creation and design, support and engineering. Design / Review light gage tube temporary and permanent structures per ASCE 7 for open structures (shade cloth structures), installations throughout the country ranging from initial schematics to final installation and post-sales support and interaction with building officials. (AutoDesk Inventor, AutoCAD, Staad.Pro.)
- **Senior Construction Engineer**, Lockheed Martin, Apple Valley, MN Oct 06 – May 08
Without supervision or support, produced complete packages (all drawings, specifications and estimates) for over \$800,000 in FAA projects in six months, including independent learning of MicroStation drafting software and RS/MEANS estimating. Projects ranged in scope from large remodels, roof repairs, siding, retrofits, demolition, schematic design of new facility, including significant Architectural scopes, project oversight. (MicroStation)
- **Lecturer**, MSPE Principles and Practice exam preparation course: Concrete, April & October 07, covering ACI 318-05.
- **Contract Project Engineer**, Advanced Structural Technologies, Bloomington, MN, Jul-Aug 06.
Design of masonry shear wall / steel joist / steel beams columns and property line foundations for inline retail (Office Max anchor) in Cambridge, MN, Peer review of 9 steel braced/ moment frame buildings in Bee Cave, TX retail development, Design of big box retail (Gander Mountain) roof structure in St. Augustine, FL (hurricane uplift coastal flood zone, steel joists, beams, columns and footings) Embed plate calculations in tilt-up concrete per ACI 318 Appendix D. Open log truss attachment review.
- **Project Engineer**, Structural Design Associates, Inc. Champlin, MN, Feb 05-Jun 06
Assistant engineer or engineer of record on multiple fast schedule projects in Minnesota, Wisconsin, and Montana. Design and analysis of multistory wood structures, minor additions and residential code partial engineering.
- **Structural Engineer**, Jack D. Walters and Associates, Columbus, OH, March 03 – Dec 04
Designed grade beams and caissons supporting five-story precast on masonry assisted living center. Designed three story mixed-use retail / office composite steel building, cornice design and ponding loads. Performed house inspections, analyzed framing and composed repair letters for PE to sign (wood, light-gage, masonry, or steel). Reviewed developer's house prototypes. Took responsibility for workstation setup, managed and tracked software updates and installation, selected and established Internet security / network / wireless encryption, e-mail and spam filter, firewall and anti-virus for six computer Windows 2000/XP network. Began self-directed learning of AutoCAD (and LT) 2002. Created templates for IBC 2000 seismic design, including story forces and building self-weight, IBC 2000 wind load and shear wall forces, IBC 2000 / ASCE 7-98 snow loads, and bidding / proposal form letter (mail merge template for job proposals).

- **Structural Engineer**, URS Corporation, Columbus, OH, February 01 – July 02
Determined lateral forces, performed framing, sizing, and analysis of buildings. Concrete tank analysis for water and wastewater treatment plants. Developed spreadsheet templates for member checks, tank uplift, and connections. Developed spreadsheets for anchorage to concrete (ACI 318 Appendix D), composite beam analysis, and footing sizing. Reviewed structural steel and reinforced concrete shop drawings, prepared and checked drafting. Reviewed existing pan joist system for changed equipment loads for Newark, OH, hospital.
- **Structural Engineer**, Paul J. Ford and Company, Columbus, OH, July 00- February 01
Performed framing layout, member selection and analysis, developed spreadsheet templates for UBC, SBC, BOCA, IBC foundation checks. Checked concrete and steel shop drawings. Analyzed various roof and floor structures for additional concentrated loads from mechanical units, devised reinforcement, supervised drafting when needed.

Project highlights

- St. Augustine, FL Gander Mountain - Hurricane winds and uplift in a coastal flood zone, steel joists, beams, columns and footings). Update Component and Cladding calculations for lag screw connected log edifice on front of store from previous calculations (90 mph to 130 mph).
- Rosedale, MN, Mall theater and retail expansion – composite floor system selection and design, vibration analysis, lateral braced frames and moment frames. (RAM structural system, EnerCalc)
- Inver Grove Heights, MN Middle School Additions and Alterations. Precast plank on steel moment frame, existing structure reinforcement, code review. Web penetrations in steel beams. EOR. (EnerCalc, RAM)
- Hazel Park Heights, Villas at Midland Hills – 3 story wood frame condominium development above precast parking. EOR. RFIs and Post-sale unit customizations. (Excel, EnerCalc)
- Creekside Assisted Living, Columbus, OH: Grade beam & caisson foundation design, seismic analysis, gravity wall design, steel beams, columns, and lintels. Loadbearing Masonry walls and columns. (Visual analysis & design, StruCalc 5 & 6, Daystar masonry)
- Global Living - 3 story retail / office building, Columbus, OH – Steel frame braced by masonry stair towers, composite floor framing, roof framing, drifting and ponding loads, optimization and vibration analysis of floor framing. (RAM Structural System)
- Dakota Pines – New Richmond, WI, design of two-story four unit condominiums, basement and walk-out models. (Woodworks, Excel, EnerCalc)
- ETABS: Seismic analysis (BOCA) to model existing two-story concrete pan joist system and evaluate capacity for two-story vertical expansion planned under 1964 codes. Composite steel.
- Bellevue, OH, Wastewater treatment plant. Performed design of six buildings and created preliminary drafting details. Project comprised four CMU buildings with precast concrete or open web steel joist roofs, a circular clarifier and a rectangular aeration tank in reinforced concrete per ACI 350. (SAP 2000, SAFE, EnerCalc)
- Ross Correctional Facility, OH, Wastewater treatment plant. Performed designs of aeration basins and several miscellaneous structures in treatment process. (SAP 2000 & SAFE) Multi-cell tank design (Excel, manual).



Forensic Building Science, Inc.

Storm Damage Report

for

Bethany Medical Center
6801 NW 39th Expressway
Bethany, OK 73008



January 18, 2013

Brian Craig Johnson
Licensed Professional Engineer
25669

Forensic Building Science, Inc.

**658 Laurel Avenue
St. Paul, Minnesota 55104
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Oklahoma Certificate of Authority #6435

Expires 30 June 2014

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Phone: 651.222.6509

Fax: 651.528.6237

E-mail: teirmiter@forensicbuildingscience.com

Website: www.forensicbuildingscience.com

Client:

Arguello Hope and Associates, P.L.L.C.

Project Address:

Douglas Brant/Bethany Medical Center

6801 NW 39th Expressway

Bethany, OK 73008

Oklahoma County.

Insurer: State Farm Insurance Company, Policy # 96-C9-7533-9

Claim #: 36-F506-026

FIELD REPORT FOR INITIAL LOSS INVESTIGATION

1.0 Background Information:

- 1.1 Forensic Building Science, Inc. was contacted by Arguello Hope Law Firm to provide an inspection of the interior and exterior of the above-referenced structure to ascertain the extent of damage caused by a storm. The date of loss was on or around May 16, 2010. The building's occupants reported leaking at numerous locations.

National Weather service reported very large hail up to softball in size along with wind gusts up to 45 mph and rainfall of approximately 1". See links:

<http://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=232233>

Note: The specific intersection listed in this report is about 2 miles to the Southwest of the property.

<http://www.srh.noaa.gov/oun/?n=events-20100516>

Our site visits were performed on March 12 and 14, 2012. Extensive photo documentation was done during the site visit. Photos are included with this report.

- 1.2 The following additional documents were used for reference:

- 2003 International Building Code.
- Haag Education Haag Certified Roof Inspector Program, Commercial Edition.
- Relationship between Moisture Content and Mechanical Properties of Gypsum Sheathing- Phase 2 Research, by Alex P. McGowan, from the

11th Canadian Conference on Building Science and Technology, Banff, Alberta, 2007.

- ANSI/SPRI ES-1, "Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems." 1998, 2003, 2011. Code referenced standard.
- Haag Certified Roof Inspector Program – Commercial edition – Course Workbook.
- ARMA technical bulletin 115 "The Effects of Ponding Water."
- SPRI "Construction-Generated Moisture and Its Effect On Roofing Systems," August 2008.
- ASTM E1886, Standard Test Method for Performance of Exterior Windows, Curtain-walls, Doors, and Impact-protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- ASTM E 2128-09a "Standard Guide for Evaluating Water Leakage of Building Walls".

1.3 The following documents have been reviewed:

- State Farm estimate (\$3,375.35) listing date inspected as June 4, 2010.
- Billy Ellis Roofing estimate (\$124,233.78) dated June 23, 2010.
- Blake Roofing estimate (\$273,192.61) dated December 13, 2010.

1.4 Forensic Building Science personnel present at this inspection:

- Gregory Crawford, Project Manager.
- Ashley Olson, Engineer-in-training.

1.5 According to the Oklahoma County Assessor's website, the one-story building was built in 1961 and is 22,689 square feet.

1.6 The roofing material on the building is a 4-ply of built up roofing with an aluminum coating. The roof has multiple levels. There was extensive pooling of water on the roof at the time of our visit. Prior to our visits, the most recent rainfalls were on March 10 (.01") and March 11 (.65"), 2012.

1.7 Area surrounding site has some open fields, some taller buildings, and is generally inconsistent with either Exposure B or Exposure D per ASCE 7. Repairs, if needed, should be coordinated with Building Official as to the classification of the surrounding terrain and appropriate Exposure for calculating wind loads and roof and insulation attachment requirements. In our opinion, exposure C should be used in calculating wind load effects on the components and cladding on this building and accessing repair strategy.

1.8 The structure framing is CMU. Interior water entry was found to be significant. This water bypassed the flashing and/or traveled through the wind and hail damaged roof and into the offices beneath. Numerous rooms have water damage to ceiling tiles, and many have damage to walls and flooring.

1.9 The manufacturer of the roofing materials is unknown.

- 1.10 According to the building owner, Douglas Brandt, there was no leaking from the roof prior to the storm event. After the storm event the owner reports that numerous leaks appeared on the ceiling tiles in the offices below. Some of these leaks have traveled down the walls to the carpeting and flooring. In addition, some of the leaks appear to be contributing to fungal growth.
- 1.11 There is a relatively flat roof edge termination on the structure. The membrane appears to be draped for a few inches past the nailer. A taller brick parapet exists on part of the roof with a cut in reglet metal flashing. The parapet is unreinforced. The International Existing Building Code 2009 version currently in effect requires additional bracing on any unreinforced masonry parapet walls. Several plumbing stacks and vents penetrate the roof. HVAC equipment is located on the roof. The condenser fins were impact-damaged. We attribute this damage to the storm event. Some of the AC units are set on wood bucks, others are set on roof curbs.
- 1.12 Inspection of the windows was not in the scope of our assignment.
- 1.13 Based on age of construction, verification of the presence and location of asbestos and lead paint should be done prior to finalizing a scope of repairs.
- 1.14 The degree of finish on the interior includes:
- Vinyl composition tile flooring.
 - Gypsum board.
 - Acoustic ceiling tiles.
 - Lead based paint (presumed) at some areas.
 - Wood veneer walls.
- 2.0 Interior Observations:**
- 2.1.1 The water damage to ceilings and walls was not repaired prior to our site visit. Study of photographs and access to the plenum indicate the roof framing is open web steel bar joists on metal deck. Another area is wood I-joists with plywood sheathing. Metal deck does not appear to have any concrete fill. Cover boards are expected. These cover boards are likely saturated below any roof punctures due to hail. This is based on the extent of interior damage. No roof cores were taken.
- 2.1.2 Infill walls are generally 16-24" o.c. steel studs. The gypsum board sheathing does not extend up into the plenum, terminating at the ceiling tile. The 1/2" gypsum board is not acceptable to be installed with 24" stud spacing. Verify stud spacing before finalizing scope.
- 2.1.3 Damage to ceilings, walls and floors was obvious in multiple areas. The ceiling tiles exhibit the most damage. This water damage is consistent with water intrusion from above flowing down through openings in the structure through a compromised roof membrane. The damage is compounded by the design of the roof which creates numerous paths for water to migrate downward from the compromised membrane.

- 2.1.4 Numerous photos were taken during this inspection. See photo log included with this report, which documents the damage at all locations inside the building.

3.0 Conclusions

- 3.1 The majority of the damage to the building's interior walls, ceilings, and flooring materials is consistent with a catastrophic failure of the roof membrane, curb flashing, flashing movement and sealant compromise. Reglet flashing in one area appears torn by wind at the transition from flat roof termination to brick parapet. We consider this area subject to localized wind effects and consider the damage consistent with wind. Hail damage to the membrane is noted as well. Such damage is not always discovered immediately as it will take rain to demonstrate the breaches in the roof and may be delayed by materials between the compromised roof membrane and the interior finishes (i.e. ceiling tile). In addition, water evaporation zones on the roof which were not previously damaged would be natural entry points for extensive water intrusion after the storm.
- 3.2 The complete scope of the damage cannot be finalized without further destructive investigation. At a minimum, water has damaged a number of ceiling, floor, and wall assemblies on the interior. Water damage to sheathing plywood is noted in several areas.
- 3.3 Based on the age of the building, we recommend that a lead and asbestos survey be performed to identify areas of concern. A licensed abatement contractor will need to remove all contaminated materials that may be affected as part of the repair work and reconstruction. We also recommend performing the repair work in isolated sections of the building to prevent any possible cross contamination during the work. Final clearance IAQ sampling is also recommended.
- 3.4 Removal of water-damaged materials should be conducted with environmental engineering controls put in place prior to the work commencing. An industrial hygienist should design these controls to protect the building inhabitants during remediation and repairs.
- 3.5 Further exploration of the affected areas will be required to establish extent of water damage and to leak-trace these areas to find all water-damaged materials. We expect damage to walls, ceilings, roof framing, and insulation.
- 3.6 Water damaged insulation and compressed insulation due to previous water saturation will have to be removed and new insulation put in place. As IECC was in place at the time of the loss that code requires repairs to conform to current energy codes, repair will have to include conformance with current energy codes for the roof and wall assemblies, if they are damaged.
- 3.7 Final cleaning of all water-damaged materials should be conducted using the most recent guidelines published by the Clean Trust (formerly the Institute of Inspection, Cleaning and Restoration Certification - IICRC).

- 3.8 Impact damaged AC units require repair to restore to a pre-loss condition. All units should be checked. At issue is that the energy code at the time of loss requires “repairs” to meet minimum energy efficiency requirements. If these units did not meet the energy efficiency requirements at the time of the loss, repair is not allowed and the units should be replaced.
- 3.9 We do not advocate combing of AC units due to known efficiency loss associated with the procedure for impact-damaged units. Replacement coils would be appropriate. If these coils are available, the efficiency of the unit must be checked against the current energy code for any associated minimum efficiency (SEER) requirements. If the unit conforms, as repaired, to these requirements, it can remain in place.
- 3.10 Air-conditioners which will be removed and reset or replaced as part of the replacement of the roof cannot be reinstalled closer than 10 feet to the roof edge if the exterior parapet wall that is less than 42” in height. If this condition exists, guardrails will be required around the AC units. As these guard rails have a minimum design load requirement an engineer will be required to design the attachments and the rail and submit these for approval. This will add to the overall replacement cost of the roof. Guard must extend past the unit in both directions. As an alternative, relocation of HVAC to farther than 10’ from the roof edge is possible but will likely require structural reinforcement of metal deck and plywood sheathing for the new location.

4.0 Recommendations

- 4.1 If the local municipality requires, Architect to create drawings of the entire building, which will need to include current mechanical, plumbing and electrical conditions. This will also help all contractors produce more accurate repair bids.
- 4.2 Due to the size of the building and the overall scope of repairs needed, it is recommended that the work be performed in phases to limit impacts on other areas of the building and the building occupants as much as possible.
- 4.3 Licensed abatement contractor should identify and remove all contaminated asbestos, and lead containing materials that will be affected during the repair work.
- 4.4 After all hazardous materials have been removed, all water damaged interior finish materials related to the loss will need to be removed and replaced. This includes (but is not limited to) the following:
- Ceiling tiles (possible asbestos).
 - Linoleum flooring.
 - Light fixtures.
 - Carpeting.
 - Gypsum walls.

- Painted surfaces (possible lead paint).
- Wood framing and plywood.

- 4.5 After completion of all current code requirements are performed, new interior finish materials can be installed.
- 4.6 Final clearance air sampling should be performed to ensure that acceptable air quality exists in the building after all work is completed.

5.0 Scope of Repair:

Engineering and architectural services will be required for some portions of this project.

- 1) Standard protocol: Test materials for possible asbestos, coal tar, and lead paint. Revisit scope if any of these materials are found.
- 2) Remove and replace the roof membranes, wet roof decking, and any wet insulation on all levels of the building. Replace per current code requirements (i.e. energy). Roof covering shall conform with UL requirements on existing construction documents unless specifically reviewed, revised, sealed by a licensed architect, and approved by the building official.
- 3) All rooftop mechanical units will have to be lifted and reset. Units less than 10' from the roof edge should be moved or approved safety guards should be installed. Roof access hatches should be reinstalled with a guard, if closer than 10' from the roof edge. The brick parapet appears too short to serve as a guard at some locations. Bracing is required. Bracing will need to be designed by a licensed design professional. Verify with Code Official.
- 4) Review of drainage on roof by mechanical engineer if not constructed as originally specified by a licensed mechanical engineer. Verify enclosed drain sizes are adequate by a licensed professional mechanical engineer. If existing plans can be found, this step may be eliminated if the drainage plans are constructed/reconstructed as shown on those plans and those plans were stamped by a licensed mechanical engineer. We do not have Mechanical Plans for these buildings.
- 5) Replace any roof metal (coping, scuppers, flashing, and penetrations) with new. Roof plans sealed by a licensed architect or engineer. Component and Cladding attachment (gutters, parapet walls, and kickers) shall be designed by a licensed engineer or installed per manufacturer's engineered requirements for a 90 mph Exposure C wind zone. Edge securement per ANSI/SPRY ES-1 tested assembly is required.
- 6) Verify slope meets $\frac{1}{4}$ " per foot or install tapered insulation to meet $\frac{1}{4}$ " per foot drainage requirement. Slope tapered insulation to drains.
- 7) Conform to current energy code for above roof deck insulation (i.e. R20).
- 8) Damaged AC units must be checked against minimum efficiency requirements before they can be repaired. If they cannot meet energy requirements, they must be replaced with more efficient units. If they can be repaired, replace coils. If OEM coils are not available, replace the unit. Check all units that have been combed for similar issues.

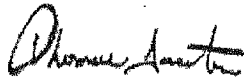
- 9) Install new insulation per Architect's sealed drawings to meet code. Insulation requirements for roofs have changed since the roof was originally constructed.
- 10) Mechanically attached base sheet will require attachment schedule per FM or manufacturer's for code imposed loads at 90 mph, Exposure C.
- 11) Construction and engineering will have to comply with ASCE 7-05. Civil or structural engineer of record shall verify.
- 12) Replace all remaining water-damaged ceiling tiles. Where proprietary tiles are required for fire rated UL assembly, find matching tile by manufacturer or find alternative UL assembly and submit to building official for approval. Sealed architectural drawing required.
- 13) Replace all water-damaged gypsum board including fire rated gypsum.
- 14) Replace all damaged doors.
- 15) Replace all damaged flooring materials.
- 16) Replace water-damaged light fixtures, if found. Electrician to review wiring of any wet light fixture for damage and accept or repair/replace.
- 17) Conform with any special inspection and testing schedule issued by the architect or engineer.
- 18) **Energy code requirements have been reviewed. Scope of work for this project is structural only. Integration of existing building systems with vapor retarders, application of sealants, flashing and other items are the responsibility of the contractor.**
- 19) Contractor shall remain on alert for signs of mold during repairs and construction.
- 20) Alternate construction techniques may be acceptable provided a licensed design professional approves and signs and stamps plans and or shop drawings for these repairs. Means and methods are the Contractor's responsibility.
- 21) Stability during construction is the responsibility of the Contractor. Structure as detailed is intended to be stable once all sheathing and fasteners are in place.
- 22) Staging of roof material and storage during construction (i.e. temporary roof loads) are the responsibility of the contractor.
- 23) Conform with any special inspection and testing schedules issued by the engineer.
- 24) Remove water damaged interior materials and effect repairs pursuant to current published guidelines by the Clean Trust (formerly the IICRC) guidelines.
- 25) Roofing, siding, and sheathing attachment will have to comply with City of Bethany wind speeds. This appears to be 90 mph, Exposure C for this property, but engineer of record / architect, or contractor shall verify with Building Official.

Discovery is ongoing. Additional testing and inspections may need to be performed and additional and/or supplemental information and opinions may be contained in future reports issued by Forensic Building Science, Inc. This report is the exclusive property of

the client noted previously and cannot be relied upon by a third party. Copies of this report are released to third parties only by written permission of the client.

Please feel free to contact our office should you have any questions or need additional information.

Respectfully submitted,

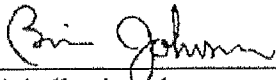


January 18, 2013

Digitally signed

Date

Tom Irmiter, President, Forensic Building Science, Inc.
Certified State Building Official, Ltd. MN No. 0002764



January 18, 2013

Digitally signed

Date

Brian Johnson, Chief Engineer, Forensic Building Science, Inc.
Haag Certified Roof Inspector – Commercial. License #201201202

Forensic Building Science, Inc.

658 Laurel Avenue
 Saint Paul, MN 55104
 651-222-6509
 teirmiter@forensicbuildingscience.com

Customer Information

Dr. Douglas Brant
 6801 NW 39th Expressway
 Bethany, OK 73008
 Bethany Medical Center

Project Information

Name Storm Damage Estimate
 Type Commercial
 Estimate Approved By: Tom Irmiter
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|---|-----|-------|------------------|---------------|-------------|------------------|------------------|
| General | | | | | | | |
| General: | | | | | | | |
| Demolition & Hauling | | | | | | | |
| DUMPSTER | | | | | | | |
| 30 cy, rental per week | 8 | ea | 0.00 | 0.00 | 0.00 | 389.07 | 3,112.56 |
| CRANE RENTAL | | | | | | | |
| crane (28 ton) rental per hr | 40 | hr | 0.00 | 0.00 | 0.00 | 173.25 | 6,930.00 |
| Electrical | | | | | | | |
| MINIMUM CHARGE FOR ELECTRICAL WORK | | | | | | | |
| for electrical work | 1 | ea | 24.11 | 149.96 | 0.00 | 0.00 | 174.07 |
| Fees | | | | | | | |
| BUILDING PERMIT | | | | | | | |
| For job \$500,001 to \$550,000 | 1 | ea | 7,700.00 | 0.00 | 0.00 | 0.00 | 7,700.00 |
| STRUCTURAL ENGINEER FEE | | | | | | | |
| Fee | 1 | ea | | | | | |
| Contingency for unknown conditions due to age of structure | 1 | ea | 10,000.00 | 0.00 | 0.00 | 0.00 | 10,000.00 |
| Temporary | | | | | | | |
| TEMPORARY ELECTRIC POWER | | | | | | | |
| Gas powered Electrical Generator 3200 watt | 12 | wk | 0.00 | 0.00 | 0.00 | 178.20 | 2,138.40 |
| Gas powered Electrical Generator 3200 watt | 8 | wk | 0.00 | 0.00 | 0.00 | 178.20 | 1,425.60 |
| STORAGE TRAILER | | | | | | | |
| per week | 8 | ea | 0.00 | 0.00 | 0.00 | 36.63 | 293.04 |
| per week | 12 | ea | 0.00 | 0.00 | 0.00 | 36.63 | 439.56 |
| PORTABLE TOILET | | | | | | | |
| chemical, per week | 12 | ea | 0.00 | 0.00 | 0.00 | 31.09 | 373.08 |
| Water Damage Remediation | | | | | | | |
| CONTAINMENT EQUIPMENT | | | | | | | |
| Exhaust fan, HEPA filtered for containment area, rent per day | 4 | dy | 0.00 | 0.00 | 0.00 | 110.88 | 443.52 |
| Sub Total (Excludes Markups) | | | 17,724.11 | 149.96 | 0.00 | 15,155.76 | 33,029.83 |

Forensic Building Science, Inc.

658 Laurel Avenue
 Saint Paul, MN 55104
 651-222-6509
 teirmiter@forensicbuildingscience.com

Customer Information

Dr. Douglas Brant
 6801 NW 39th Expressway
 Bethany, OK 73008
 Bethany Medical Center

Project Information

Name Storm Damage Estimate
 Type Commercial
 Estimate Approved By: Tom Irmiter
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-------|-------|------------------|------------------|-------------|---------------|------------------|
| Roof | | | | | | | |
| Roof area #1: | | | | | | | |
| Roofing | | | | | | | |
| BUILT-UP ROOFING | | | | | | | |
| replace, 4 ply | 47.25 | sq | 91.43 | 194.12 | 0.00 | 12.67 | 14,090.90 |
| remove, 4 ply | 47.25 | sq | 0.00 | 101.20 | 0.00 | 0.00 | 4,781.70 |
| add to paint with aluminum UV coating | 47.25 | sq | 19.80 | 40.48 | 0.00 | 0.00 | 2,848.23 |
| add per lf of parapet wall, includes cant strip and roofing wrap up wall | 50 | lf | 11.66 | 10.95 | 0.00 | 0.83 | 1,172.00 |
| PIPE JACK | | | | | | | |
| replace | 9 | ea | 10.58 | 8.50 | 0.00 | 0.00 | 171.72 |
| remove | 9 | ea | 0.00 | 9.94 | 0.00 | 0.00 | 89.46 |
| FURNACE VENT CAP | | | | | | | |
| replace | 2 | ea | 13.92 | 9.94 | 0.00 | 0.00 | 47.72 |
| remove | 2 | ea | 0.00 | 12.51 | 0.00 | 0.00 | 25.02 |
| REMOVE AND REINSTALL AC COMPRESSOR | | | | | | | |
| rebuild platform flat roof | | | | | | | |
| One to 5 ton unit | 1 | ea | 0.00 | 460.00 | 0.00 | 0.00 | 460.00 |
| Install 2" ISO Insulation Board | 47.25 | SQ | 66.00 | 188.00 | 0.00 | 0.00 | 12,001.50 |
| Install 1/4" per 12" Tapered ISO Insulation Board | 47.25 | SQ | 130.00 | 366.00 | 0.00 | 0.00 | 23,436.00 |
| Sub Total (Excludes Markups) | | | 15,222.68 | 43,261.41 | 0.00 | 640.16 | 59,124.25 |

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Estimate Information

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| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|------------------|------------------|-------------|-----------------|-------------------|
| Roof | | | | | | | |
| Roof area #2: | | | | | | | |
| Roofing | | | | | | | |
| BUILT-UP ROOFING | | | | | | | |
| replace, 4 ply | 83 | sq | 91.43 | 194.12 | 0.00 | 12.67 | 24,752.26 |
| remove, 4 ply | 83 | sq | 0.00 | 101.20 | 0.00 | 0.00 | 8,399.60 |
| add to paint with aluminum UV coating | 83 | sq | 19.80 | 40.48 | 0.00 | 0.00 | 5,003.24 |
| add per lf of parapet wall, includes cant strip and roofing wrap up wall | 181 | lf | 11.66 | 10.95 | 0.00 | 0.83 | 4,242.64 |
| DRIP EDGE | | | | | | | |
| replace | 518 | lf | 0.57 | 0.29 | 0.00 | 0.00 | 445.48 |
| PIPE JACK | | | | | | | |
| replace | 14 | ea | 10.58 | 8.50 | 0.00 | 0.00 | 267.12 |
| remove | 14 | ea | 0.00 | 9.94 | 0.00 | 0.00 | 139.16 |
| FURNACE VENT CAP | | | | | | | |
| replace | 10 | ea | 13.92 | 9.94 | 0.00 | 0.00 | 238.60 |
| remove | 10 | ea | 0.00 | 12.51 | 0.00 | 0.00 | 125.10 |
| REMOVE AND REINSTALL AC COMPRESSOR | | | | | | | |
| rebuild platform flat roof | | | | | | | |
| One to 5 ton unit | 4 | ea | 0.00 | 460.00 | 0.00 | 0.00 | 1,840.00 |
| Over 5 to 10 ton unit | 6 | ea | 0.00 | 690.00 | 0.00 | 0.00 | 4,140.00 |
| Install 2" ISO Insulation Board | 83 | SQ | 66.00 | 188.00 | 0.00 | 0.00 | 21,082.00 |
| Install 1/4" per 12" Tapered ISO Insulation Board | 83 | SQ | 130.00 | 366.00 | 0.00 | 0.00 | 41,168.00 |
| Sub Total (Excludes Markups) | | | 28,193.13 | 82,448.23 | 0.00 | 1,201.84 | 111,843.20 |

Roof area #3:

Roofing

| | | | | | | | |
|---------------------------------------|-------|----|-------|--------|------|-------|-----------|
| BUILT-UP ROOFING | | | | | | | |
| replace, 4 ply | 130.8 | sq | 91.43 | 194.12 | 0.00 | 12.67 | 39,007.18 |
| remove, 4 ply | 130.8 | sq | 0.00 | 101.20 | 0.00 | 0.00 | 13,236.96 |
| add to paint with aluminum UV coating | 130.8 | sq | 19.80 | 40.48 | 0.00 | 0.00 | 7,884.62 |
| CHIMNEY SAW-KERF FLASHING | | | | | | | |
| replace | 293 | lf | 8.05 | 7.67 | 0.00 | 0.00 | 4,605.96 |

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 Bethany Medical Center

Project Information

Name Storm Damage Estimate
 Type Commercial
 Estimate Approved By: Tom Irmiter
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|---|------|-------|------------------|-------------------|-------------|-----------------|-------------------|
| Roof | | | | | | | |
| Roof area #3: | | | | | | | |
| Roofing | | | | | | | |
| PIPE JACK | | | | | | | |
| replace | 14 | ea | 10.58 | 8.50 | 0.00 | 0.00 | 267.12 |
| remove | 14 | ea | 0.00 | 9.94 | 0.00 | 0.00 | 139.16 |
| FURNACE VENT CAP | | | | | | | |
| replace | 8 | ea | 13.92 | 9.94 | 0.00 | 0.00 | 190.88 |
| remove | 8 | ea | 0.00 | 12.51 | 0.00 | 0.00 | 100.08 |
| REMOVE AND REINSTALL AC COMPRESSOR | | | | | | | |
| rebuild platform flat roof | | | | | | | |
| One to 5 ton unit | 3 | ea | 0.00 | 460.00 | 0.00 | 0.00 | 1,380.00 |
| Over 5 to 10 ton unit | 4 | ea | 0.00 | 690.00 | 0.00 | 0.00 | 2,760.00 |
| Install 2" ISO Insulation Board | 131 | SQ | 66.00 | 188.00 | 0.00 | 0.00 | 33,274.00 |
| Install 1/4" per 12" Tapered ISO Insulation Board | 131 | SQ | 130.00 | 366.00 | 0.00 | 0.00 | 64,976.00 |
| Rough Carpentry | | | | | | | |
| WALL OR ROOF SHEATHING | | | | | | | |
| Remove, all thicknesses | 1800 | sf | 0.00 | 0.40 | 0.00 | 0.00 | 720.00 |
| 1/2" thick | 1800 | sf | 0.66 | 0.69 | 0.00 | 0.00 | 2,430.00 |
| Sub Total (Excludes Markups) | | | 44,031.01 | 125,283.71 | 0.00 | 1,657.24 | 170,971.96 |
| Roof area #4: | | | | | | | |
| Roofing | | | | | | | |
| BUILT-UP ROOFING | | | | | | | |
| replace, 4 ply | 11.5 | sq | 91.43 | 194.12 | 0.00 | 12.67 | 3,429.53 |
| remove, 4 ply | 11.5 | sq | 0.00 | 101.20 | 0.00 | 0.00 | 1,163.80 |
| add to paint with aluminum UV coating | 11.5 | sq | 19.80 | 40.48 | 0.00 | 0.00 | 693.22 |
| DRIP EDGE | | | | | | | |
| replace | 136 | lf | 0.57 | 0.29 | 0.00 | 0.00 | 116.96 |
| remove | 136 | lf | 0.00 | 0.15 | 0.00 | 0.00 | 20.40 |
| Install 2" ISO Insulation Board | 11.5 | SQ | 66.00 | 188.00 | 0.00 | 0.00 | 2,921.00 |
| Install 1/4" per 12" Tapered ISO Insulation Board | 11.5 | SQ | 130.00 | 366.00 | 0.00 | 0.00 | 5,704.00 |
| Sub Total (Excludes Markups) | | | 3,610.67 | 10,292.54 | 0.00 | 145.71 | 14,048.91 |
| Roof Sub Total (Excludes Markups) | | | 91,057.49 | 261,285.89 | 0.00 | 3,644.94 | 355,988.32 |

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Customer Information

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Bethany, OK 73008
Bethany Medical Center

Project Information

Name Storm Damage Estimate

Type Commercial

Contact# (651) 222-6509

Estimate Approved By: Tom Imiter

Forensic Building Science, Inc.

658 Laurel Avenue, Saint Paul, MN 55104

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|------|-------|-----------------|---------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-1: Business office | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 37.5 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 910.50 |
| RUBBER BASE | | | | | | | |
| replace, standard grade | 80 | lf | 2.25 | 0.82 | 0.00 | 0.00 | 245.60 |
| remove | 80 | lf | 0.00 | 0.37 | 0.00 | 0.00 | 29.60 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 336 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 534.24 |
| remove | 336 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 47.04 |
| add for fire-rated tile installed with clips | 336 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 299.04 |
| Sub Total (Excludes Markups) | | | 1,425.36 | 640.66 | 0.00 | 0.00 | 2,066.02 |
| Site-2: Examination room | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING | | | | | | | |
| clean and wax vinyl floor | 121 | sf | 0.01 | 0.26 | 0.00 | 0.00 | 32.67 |
| Masking & Moving | | | | | | | |
| MASK ROOM | | | | | | | |
| Average size | 1 | ea | 4.14 | 38.64 | 0.00 | 0.00 | 42.78 |
| Painting | | | | | | | |
| PAINT PLASTER OR DRYWALL | | | | | | | |
| prime | 352 | sf | 0.15 | 0.29 | 0.00 | 0.00 | 154.88 |
| 2 coats | 352 | sf | 0.24 | 0.47 | 0.00 | 0.00 | 249.92 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 121 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 192.39 |
| remove | 121 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 16.94 |
| add for fire-rated tile installed with clips | 121 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 107.69 |
| Sub Total (Excludes Markups) | | | 355.59 | 441.68 | 0.00 | 0.00 | 797.27 |

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 Bethany, OK 73008
 Bethany Medical Center

Project Information

Name Storm Damage Estimate
Type Commercial
Estimate Approved By: Tom Imiter
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509**Estimate Information****Terms:** We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|-----------------|---------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-3: Dr. Brant Hallway | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 24 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 582.72 |
| remove | 24 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 124.56 |
| RUBBER BASE | | | | | | | |
| replace, standard grade | 116 | lf | 2.25 | 0.82 | 0.00 | 0.00 | 356.12 |
| remove | 116 | lf | 0.00 | 0.37 | 0.00 | 0.00 | 42.92 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 216 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 343.44 |
| remove | 216 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 30.24 |
| add for fire-rated tile installed with clips | 216 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 192.24 |
| Sub Total (Excludes Markups) | | | 1,059.72 | 612.52 | 0.00 | 0.00 | 1,672.24 |

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Project Information

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 658 Laurel Avenue, Saint Paul, MN 55104

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| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|-----------------|-----------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-4 : Record Room | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 63 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 1,529.64 |
| remove | 63 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 326.97 |
| RUBBER BASE | | | | | | | |
| replace, standard grade | 96 | lf | 2.25 | 0.82 | 0.00 | 0.00 | 294.72 |
| remove | 96 | lf | 0.00 | 0.37 | 0.00 | 0.00 | 35.52 |
| Masking & Moving | | | | | | | |
| MASK ROOM | | | | | | | |
| Average size | 1 | ea | 4.14 | 38.64 | 0.00 | 0.00 | 42.78 |
| MOVE AND COVER ROOM CONTENTS | | | | | | | |
| Heavy or above average | 1 | ea | 13.13 | 57.96 | 0.00 | 0.00 | 71.09 |
| Painting | | | | | | | |
| PAINT PLASTER OR DRYWALL | | | | | | | |
| prime | 768 | sf | 0.15 | 0.29 | 0.00 | 0.00 | 337.92 |
| 2 coats | 768 | sf | 0.24 | 0.47 | 0.00 | 0.00 | 545.28 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 560 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 890.40 |
| remove | 560 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 78.40 |
| add for fire-rated tile installed with clips | 560 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 498.40 |
| Sub Total (Excludes Markups) | | | 2,617.11 | 2,034.01 | 0.00 | 0.00 | 4,651.12 |

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|--|-----|-------|---------------|---------------|-------------|-------------|---------------|
| Interior-Main level | | | | | | | |
| Site-5: Office | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING clean and wax vinyl floor | 110 | sf | 0.01 | 0.26 | 0.00 | 0.00 | 29.70 |
| Drywall | | | | | | | |
| 1/2" DRYWALL INSTALLED replace, with smooth-wall finish | 32 | sf | 0.71 | 1.70 | 0.00 | 0.00 | 77.12 |
| remove, drywall | 32 | sf | 0.00 | 0.27 | 0.00 | 0.00 | 8.64 |
| add for 1/2" type X fire-rated drywall | 32 | sf | 0.13 | 0.00 | 0.00 | 0.00 | 4.16 |
| Masking & Moving | | | | | | | |
| MASK ROOM Average size | 1 | ea | 4.14 | 38.64 | 0.00 | 0.00 | 42.78 |
| Painting | | | | | | | |
| PAINT PLASTER OR DRYWALL prime | 336 | sf | 0.15 | 0.29 | 0.00 | 0.00 | 147.84 |
| 2 coats | 336 | sf | 0.24 | 0.47 | 0.00 | 0.00 | 238.56 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE textured face | 110 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 174.90 |
| remove | 110 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 15.40 |
| add for fire-rated tile installed with clips | 110 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 97.90 |
| Water Damage Remediation | | | | | | | |
| WATER DAMAGE REMEDIATION TEAR-OUT WALL FINISHES Remove contaminated drywall | 32 | sf | 0.21 | 0.17 | 0.00 | 0.00 | 12.16 |
| TREAT CONTAMINATED FRAMING WITH ANTIMICROBIAL SPRAY Treat 2" x 4" framing with antimicrobial spray | 32 | sf | 0.21 | 0.08 | 0.00 | 0.00 | 9.28 |
| ENCAPSULATE FRAMING Encapsulate treated 2" x 4" framing with sealer | 32 | sf | 0.57 | 0.17 | 0.00 | 0.00 | 23.68 |
| Sub Total (Excludes Markups) | | | 388.44 | 493.68 | 0.00 | 0.00 | 882.12 |

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| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|-----------------|---------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-6: Main hallway | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING | | | | | | | |
| clean carpet | 294 | sf | 0.01 | 0.23 | 0.00 | 0.00 | 70.56 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 294 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 467.46 |
| remove | 294 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 41.16 |
| add for fire-rated tile installed with clips | 294 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 261.66 |
| Sub Total (Excludes Markups) | | | 520.38 | 320.46 | 0.00 | 0.00 | 840.84 |
| Site-7: Lynn Hallway | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 28 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 679.84 |
| remove | 28 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 145.32 |
| RUBBER BASE | | | | | | | |
| replace, standard grade | 122 | lf | 2.25 | 0.82 | 0.00 | 0.00 | 374.54 |
| remove | 122 | lf | 0.00 | 0.37 | 0.00 | 0.00 | 45.14 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 248 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 394.32 |
| remove | 248 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 34.72 |
| add for fire-rated tile installed with clips | 248 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 220.72 |
| Sub Total (Excludes Markups) | | | 1,199.30 | 695.30 | 0.00 | 0.00 | 1,894.60 |

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|--|-----|-------|-----------------|---------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-8: Hallway-Tornado area | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING | | | | | | | |
| clean carpet | 592 | sf | 0.01 | 0.23 | 0.00 | 0.00 | 142.08 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 592 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 941.28 |
| remove | 592 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 82.88 |
| add for fire-rated tile installed with clips | 592 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 526.88 |
| Sub Total (Excludes Markups) | | | 1,047.84 | 645.28 | 0.00 | 0.00 | 1,693.12 |
| Site-9: Nurse office | | | | | | | |
| Cleaning | | | | | | | |
| LIGHT FIXTURES CLEANING | | | | | | | |
| clean fluorescent light fixture | 2 | ea | 0.62 | 14.72 | 0.00 | 0.00 | 30.68 |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, high grade | 15 | sy | 23.13 | 6.84 | 0.00 | 0.00 | 449.55 |
| remove | 15 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 77.85 |
| Masking & Moving | | | | | | | |
| MASK ROOM | | | | | | | |
| Average size | 1 | ea | 4.14 | 38.64 | 0.00 | 0.00 | 42.78 |
| MOVE AND COVER ROOM CONTENTS | | | | | | | |
| Heavy or above average | 1 | ea | 13.13 | 57.96 | 0.00 | 0.00 | 71.09 |
| Painting | | | | | | | |
| PAINT PLASTER OR DRYWALL | | | | | | | |
| prime | 368 | sf | 0.15 | 0.29 | 0.00 | 0.00 | 161.92 |
| 2 coats | 368 | sf | 0.24 | 0.47 | 0.00 | 0.00 | 261.28 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 132 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 209.88 |
| remove | 132 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 18.48 |
| add for fire-rated tile installed with clips | 132 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 117.48 |
| Sub Total (Excludes Markups) | | | 741.30 | 699.69 | 0.00 | 0.00 | 1,440.99 |

Forensic Building Science, Inc.

658 Laurel Avenue
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 651-222-6509
 teirmiter@forensicbuildingscience.com

Customer Information

Dr. Douglas Brant
 6801 NW 39th Expressway
 Bethany, OK 73008
 Bethany Medical Center

Project Information

Name Storm Damage Estimate
 Type Commercial
 Estimate Approved By: Tom Irmier
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|-----------------|-----------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-10: X-ray hall way | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING | | | | | | | |
| clean carpet | 296 | sf | 0.01 | 0.23 | 0.00 | 0.00 | 71.04 |
| clean and wax vinyl floor | 256 | sf | 0.01 | 0.26 | 0.00 | 0.00 | 69.12 |
| Flooring | | | | | | | |
| ADD FOR CARPET COVE | | | | | | | |
| replace, standard grade | 70 | lf | 3.13 | 5.53 | 0.00 | 0.00 | 606.20 |
| remove | 70 | lf | 0.00 | 0.74 | 0.00 | 0.00 | 51.80 |
| Masking & Moving | | | | | | | |
| MOVE AND COVER ROOM CONTENTS | | | | | | | |
| Heavy or above average | 2 | ea | 13.13 | 57.96 | 0.00 | 0.00 | 142.18 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 552 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 877.68 |
| remove | 552 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 77.28 |
| add for fire-rated tile installed with clips | 552 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 491.28 |
| Sub Total (Excludes Markups) | | | 1,222.40 | 1,164.18 | 0.00 | 0.00 | 2,386.58 |

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Contact# (651) 222-6509

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| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|-----|-------|-----------------|-----------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-11: Back Hallway | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 41 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 995.48 |
| remove | 41 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 212.79 |
| ADD FOR CARPET COVE | | | | | | | |
| replace, standard grade | 118 | lf | 3.13 | 5.53 | 0.00 | 0.00 | 1,021.88 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 196 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 311.64 |
| remove | 196 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 27.44 |
| add for fire-rated tile installed with clips | 196 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 174.44 |
| Sub Total (Excludes Markups) | | | 1,429.34 | 1,314.33 | 0.00 | 0.00 | 2,743.67 |

Site-12: Pharmacy

Acoustic Ceilings

1/2" CEILING TILES GLUED ON FLAT CEILING

| | | | | | | | |
|------------------------|-----|----|------|------|------|------|----------|
| replace, textured face | 768 | sf | 1.79 | 1.13 | 0.00 | 0.00 | 2,242.56 |
| remove only | 768 | sf | 0.00 | 0.53 | 0.00 | 0.00 | 407.04 |

Drywall

1/2" DRYWALL INSTALLED

| | | | | | | | |
|--|----|----|------|------|------|------|--------|
| replace, with smooth-wall finish | 64 | sf | 0.71 | 1.70 | 0.00 | 0.00 | 154.24 |
| remove, drywall | 64 | sf | 0.00 | 0.27 | 0.00 | 0.00 | 17.28 |
| add for 1/2" type X fire-rated drywall | 64 | sf | 0.13 | 0.00 | 0.00 | 0.00 | 8.32 |

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 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|------|-------|-----------------|-----------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-12: Pharmacy | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, high grade | 86 | sy | 23.13 | 6.84 | 0.00 | 0.00 | 2,577.42 |
| remove | 86 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 446.34 |
| RUBBER BASE | | | | | | | |
| replace, standard grade | 112 | lf | 2.25 | 0.82 | 0.00 | 0.00 | 343.84 |
| remove | 112 | lf | 0.00 | 0.37 | 0.00 | 0.00 | 41.44 |
| Masking & Moving | | | | | | | |
| MASK ROOM | | | | | | | |
| Large | 1 | ea | 4.84 | 45.91 | 0.00 | 0.00 | 50.75 |
| MOVE AND COVER ROOM CONTENTS | | | | | | | |
| Heavy or above average | 1 | ea | 13.13 | 57.96 | 0.00 | 0.00 | 71.09 |
| Painting | | | | | | | |
| PAINT PLASTER OR DRYWALL | | | | | | | |
| prime | 896 | sf | 0.15 | 0.29 | 0.00 | 0.00 | 394.24 |
| 2 coats | 896 | sf | 0.24 | 0.47 | 0.00 | 0.00 | 636.16 |
| Sub Total (Excludes Markups) | | | 4,037.07 | 3,353.65 | 0.00 | 0.00 | 7,390.72 |
| Site-13: Reception area | | | | | | | |
| Cleaning | | | | | | | |
| FLOORING CLEANING | | | | | | | |
| clean carpet | 1248 | sf | 0.01 | 0.23 | 0.00 | 0.00 | 299.52 |
| Masking & Moving | | | | | | | |
| MOVE AND COVER ROOM CONTENTS | | | | | | | |
| Average | 1 | ea | 11.56 | 45.91 | 0.00 | 0.00 | 57.47 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 1248 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 1,984.32 |
| remove | 1248 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 174.72 |
| Suspended Ceilings | | | | | | | |
| add for fire-rated tile installed with clips | 1248 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 1,110.72 |
| Sub Total (Excludes Markups) | | | 2,220.52 | 1,406.23 | 0.00 | 0.00 | 3,626.75 |

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 Bethany Medical Center

Project Information

Name Storm Damage Estimate

Type Commercial

Contact# (651) 222-6509

Estimate Approved By: Tom Imler
 Forensic Building Science, Inc.
 658 Laurel Avenue, Saint Paul, MN 55104

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|--|------|-------|-----------------|-----------------|-------------|-------------|-----------------|
| Interior-Main level | | | | | | | |
| Site-14: Dentistry | | | | | | | |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 240 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 381.60 |
| remove | 240 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 33.60 |
| add for fire-rated tile installed with clips | 240 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 213.60 |
| Sub Total (Excludes Markups) | | | 422.40 | 206.40 | 0.00 | 0.00 | 628.80 |
| Site-15: Hallway | | | | | | | |
| Flooring | | | | | | | |
| GLUE-DOWN CARPET | | | | | | | |
| replace, standard grade | 58.7 | sy | 17.44 | 6.84 | 0.00 | 0.00 | 1,425.24 |
| remove | 58.7 | sy | 0.00 | 5.19 | 0.00 | 0.00 | 304.65 |
| ADD FOR CARPET COVE | | | | | | | |
| replace, standard grade | 188 | lf | 3.13 | 5.53 | 0.00 | 0.00 | 1,628.08 |
| Sub Total (Excludes Markups) | | | 1,612.17 | 1,745.80 | 0.00 | 0.00 | 3,357.97 |

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Bethany, OK 73008
Bethany Medical Center

Project Information

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Type Commercial
Estimate Approved By: Tom Irmter
Forensic Building Science, Inc.
658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|---|-----|-------|------------------|------------------|-------------|-------------|------------------|
| Interior-Main level | | | | | | | |
| Site-16: Unassigned area | | | | | | | |
| Acoustic Ceilings | | | | | | | |
| 1/2" CEILING TILES GLUED ON FLAT CEILING | | | | | | | |
| replace, textured face | 304 | sf | 1.79 | 1.13 | 0.00 | 0.00 | 887.68 |
| remove only | 304 | sf | 0.00 | 0.53 | 0.00 | 0.00 | 161.12 |
| Cleaning | | | | | | | |
| LIGHT FIXTURES CLEANING | | | | | | | |
| clean fluorescent light fixture | 2 | ea | 0.62 | 14.72 | 0.00 | 0.00 | 30.68 |
| FLOORING CLEANING | | | | | | | |
| clean and wax vinyl floor | 420 | sf | 0.01 | 0.26 | 0.00 | 0.00 | 113.40 |
| Suspended Ceilings | | | | | | | |
| 2' X 2' SUSPENDED CEILING TILE | | | | | | | |
| textured face | 116 | sf | 1.23 | 0.36 | 0.00 | 0.00 | 184.44 |
| remove | 116 | sf | 0.00 | 0.14 | 0.00 | 0.00 | 16.24 |
| add for fire-rated tile installed with clips | 116 | sf | 0.53 | 0.36 | 0.00 | 0.00 | 103.24 |
| Wall Coverings | | | | | | | |
| WALL COVERINGS | | | | | | | |
| STRIP WALLPAPER | | | | | | | |
| Non-strippable | 192 | sf | 0.00 | 1.17 | 0.00 | 0.00 | 224.64 |
| VINYL-COATED WALLPAPER | | | | | | | |
| replace standard grade | 192 | sf | 1.29 | 1.55 | 0.00 | 0.00 | 545.28 |
| Sub Total (Excludes Markups) | | | 1,001.44 | 1,265.28 | 0.00 | 0.00 | 2,266.72 |
| Interior-Main level Sub Total (Excludes Markups) | | | 21,300.38 | 17,039.15 | 0.00 | 0.00 | 38,339.53 |

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 658 Laurel Avenue, Saint Paul, MN 55104

Contact# (651) 222-6509

Estimate Information

Terms: We are pleased to submit to you the following estimate

| Description | QTY | Units | Material | Labor | Subcontract | Equipment | Cost |
|------------------------------|-----|-------|------------|------------|-------------|-----------|--------------|
| Cost | | | 130,081.97 | 278,475.00 | 0.00 | 18,800.70 | \$427,357.67 |
| Profit & Overhead | | | 27,317.21 | 58,479.75 | 0.00 | 3,948.15 | \$89,745.11 |
| Summary | | | 157,399.19 | 336,954.75 | 0.00 | 22,748.85 | \$517,102.79 |
| Sales Tax | | | | | | | \$40,463.29 |
| TOTAL | | | | | | | \$557,566.08 |